

REMARKS

Claims 8-19 are currently pending with claims 8 and 14 being independent. In the Final Office Action, the Examiner maintains that both independent claims 8 and 14 are obvious over Caprino (WO 02/080409) in view of Arecco (U.S. Pat. App. Pub. No. 2003/0194232). However, neither reference, alone or in combination, teaches or suggests every limitation of the independent claims. Further, there is no reason for one skilled in the art to combine the cited references as suggested by the Examiner because the references teach away from the proffered combination.

Claim 8 is directed to an optical add/drop amplification node configured to communicatively interconnect first and second optical fiber spans in an optical telecommunications system. Claim 8 recites two distinct input amplifiers. The first input amplifier is arranged to output amplified spontaneous emission (ASE) noise, such that the output power of the ASE noise compensates for a loss of signal power due to a break in the first optical fiber span. This ensures that any channels added at the add/drop device will survive the break. The second input amplifier also generates the compensating ASE noise to compensate for the loss of signal power, but does so responsive to a failure of the first input amplifier. This ensures that the channels added at the add/drop device will survive both the break in the fiber as well as an unforeseen failure of the first input amplifier.

Claim 8 recites, “a second input amplifier configured to generate the compensating ASE noise responsive to a failure of the first input amplifier.” The Office Action acknowledges that Caprino does not teach or suggest this limitation, but alleges that Arecco does. However, the Office Action mischaracterizes the Arecco reference.

Arecco teaches a system and method of switching the transmission of an optical signal from a first primary guided optical path to a secondary guided optical path when the transmission in the first primary guided optical path degrades. *E.g. Arecco, ¶[0003].*

Particularly, Arecco provides a first set of three optical transmission amplifiers (11, 12, 13) on a first optical transmission path (1), and a second set of three optical amplifiers (21, 22, 23) along an independent and completely different optical transmission path (2) that is independent of, and completely different from, the first path. *E.g., Arecco, Figures 1-5.* Each optical amplifier is interconnected by respective sections of optical fiber cables (100, 200) such that switches (41, 42) switch the transmission of an optical signal from the first optical transmission path to the second optical transmission path upon detecting a failure or the degradation of the first optical transmission path. *E.g., Arecco, ¶[0070-71; 0082].*

In short, Arecco discloses a system and a method of transmission switching through an optical communication system. *E.g., Arecco, ¶¶[0002-0003, 0069, 0082, 0135]; see also Figures 1-5.* That is, the switches in Arecco switch a transmitted optical signal to a completely different guided optical path whenever a fault is detected, or whenever the performance of an optical amplifier or an optical fiber cable is degraded. *E.g. Arecco, ¶[0082].* This does not teach or suggest claim 8. Regardless of the number of amplifiers that are positioned on the optical paths, changing or switching the transmission of a signal from one degraded (or failed) transmission path to another clear transmission path to ensure the continued propagation of the signal does not teach or suggest “a second input amplifier configured to generate the compensating ASE noise responsive to a failure of the first input amplifier.” Indeed, even though both transmission paths in Arecco have multiple amplifiers, none of those amplifiers generate compensating ASE noise, as is required by claim 8, and Arecco does not teach or suggest that any of the amplifiers should perform such a function.

Therefore, neither Caprino nor Arecco teaches or suggests, “a second input amplifier configured to generate the compensating ASE noise responsive to a failure of the first input amplifier,” as recited in claim 8. Since both references alone fail to teach or suggest this

limitation, any combination of the cited references also fails to teach or suggest this limitation.

As such, the §103(a) rejection of claim 8, and its dependent claims, fails for at least this reason.

However, another reason the references fail to render claim 8 obvious is that each cited reference teaches away from a combination with the other. Specifically, Caprino discloses a first amplifier that amplifies ASE noise to compensate for the power of channels that are lost due to a detected fault. According to the Office Action, all that the Caprino system needs to produce the claimed invention is a second ASE noise-generating amplifier. However, not only do the amplifiers of Arecco not generate that noise, their addition to the Caprino system would necessarily render any amplifiers that do generate noise completely useless. That is, any break or degradation in the system of Caprino that would cause an amplifier to generate noise would also cause the switch to a clear transmission line in Arecco. Thus, Arecco would ensure that any noise-generating amplifiers are removed from the transmission path. One skilled in the art would never modify Caprino according to Arecco because doing so means destroying the system and the intended goal of Caprino.

Of course, the reverse is also true. Particularly, the fundamental focus of the Arecco amplifiers is to facilitate communications by changing transmission paths. Amplifiers that generate noise, however, are vigorously discouraged by Arecco. Indeed, Arecco unquestionably desires a clear transmission path to propagate the optical signals. Otherwise, Arecco would not teach a system that switches from a degraded or failed transmission path (i.e., a noisy transmission path) to a clear transmission path (i.e., no noise).

The alleged combination is improper because each of the references teaches away from a combination with the other. Thus, the §103(a) rejection of claim 8 fails for this additional reason.

In the Office Action, the Examiner maintains that one skilled in the art would be motivated to modify Caprino according to Arecco because Arecco teaches the “broader”

concept of switching to a backup amplifier to perform a function performed by a failed amplifier.

See *Final Office Action*, p. 8, II. 5-15. This reasoning wholly mischaracterizes the references.

Arecco does not teach, suggest, or otherwise hint at switching to a backup amplifier – especially one that generates noise. If anything, Arecco teaches away from this concept. Arecco more accurately teaches the concept of switching from one transmission path (that possibly could have one or more noisy amplifiers) to a different transmission path that has no noisy amplifiers. Arecco does not teach or suggest any amplifiers that purposefully generate a compensating noise, nor does Arecco teach or suggest switching to an amplifier that generates a compensating noise. Any contention to the contrary is conclusory and unsupported by the references.

Further, as acknowledged in the Office Action, Caprino also fails to teach or suggest a second ASE noise generating amplifier. Given this admission, and the fact that Arecco teaches away from such amplifiers, the existence of a second ASE noise-generating amplifier in the alleged combination is a fabrication. It certainly is not disclosed in the cited references. The rejection is based on impermissible hindsight reconstruction.

Therefore, the references fail to render claim 8 for several reasons. Neither reference, alone or in combination, teaches or suggests, “a second input amplifier configured to generate the compensating ASE noise responsive to a failure of the first input amplifier.” Further, each reference teaches away from the alleged combination with the other. Thus, there is no motivation for anyone having ordinary skill in the art to make the alleged combination. Accordingly, for at least these reasons, the references fail to render claim 8, or any of its dependent claims, obvious.

Claim 14 is the corresponding method claim and also stands rejected as being obvious over Caprino in view of Arecco. However, claim 14 recites, “generating the ASE noise at a second input amplifier communicatively coupled to the first input amplifier responsive to

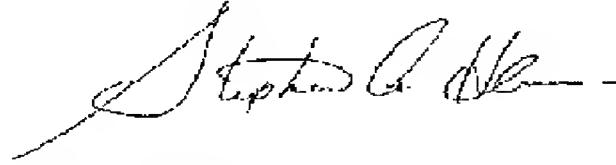
detecting a failure of the first input amplifier." Thus, for reasons similar to those stated above, none of the cited references, alone or in combination, teaches or suggests claim 14 or any of its dependent claims.

Next, claims 11 and 15-18 stand rejected as being obvious over Caprino in view of Arecco and in further view of Ishimura (U.S. Pat. No. 5,440,418). However, claims 11 and 15-18 are patentable over the art of record because their respective independent claims 8 and 14 are allowable over the prior art of record. Further, Ishimura does not remedy the deficiencies of either of Caprino or Arecco. Therefore claims 11 and 15-18 are also patentable over the cited references.

In light of the foregoing remarks, Applicant respectfully submits that all pending claims are in condition for allowance. Therefore, the Examiner is respectfully requested to issue a Notice of Allowance for all pending claims.

Respectfully submitted,

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